

DOES ASSET ALLOCATION EXPLAIN THE STYLES AND PERFORMANCE OF UNIT TRUST FUNDS: A STYLE ANALYSIS WITH EVIDENCE FROM MALAYSIA[§]

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Artikel ini menggunakan analisis 'return-based style' yang dimajukan oleh Sharpe (1988, 1992) untuk mengkaji stail dan prestasi 42 buah tabung unit amanah di Malaysia sepanjang tempoh masa Februari 1996–Januari 2001. Selain penilaian melalui kaedah yang baru, artikel ini juga memberi pandangan mendalam tentang beberapa aspek lain tabung-tabung tersebut termasuk strategi alokasi aset masing-masing. Didapati bahawa prestasi yang paling baik dicatat oleh tabung-tabung yang kecil, diikuti oleh Tabung Pertumbuhan (Growth Funds) yang agresif dan tabung pertumbuhan yang lain. Tambahan pula, stail pengurusan yang pasif adalah ketara antara tabung-tabung unit amanah di Malaysia. Kajian ini juga menunjukkan betapa pentingnya mengadakan dasar pelaburan untuk melindungi para pelabur.

INTRODUCTION

Mutual fund or unit trust fund, by all the underpinning theory and practical application of Modern Portfolio Theory, is an investment product created by asset management companies (AMCs),¹ to pool

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¹ AMCs are like plan sponsors mentioned in the literature of U.S. mutual funds.

resources from individual investors and invest in a diversified portfolio of securities, with the purpose of adding value to their financial wealth in future period. It is the primary concern of investors that they will receive their returns after accounting for managers' fees. The returns are to compensate them for taking the risk in investing and accounted for the time value of money. In this respect, fund managers are often expected to deliver a return above a chosen benchmark with their professional skills either through passive or active investment strategies i.e., successful market timing, superior security selection or asset allocation strategy. Performance measurement for mutual funds hitherto, has existed as one of the prime focus of numerous research in portfolio management (Treyner, 1965; Sharpe, 1966; Jensen, 1968; Lehman and Modest, 1987; Elton and Gruber, 1995).

A fiduciary relationship exists between investors and their fund managers has underscored the importance of *investment policy*. In this respect, Gibson (1996) has enlisted a four-step approach in designing an investment portfolio for investing clients.² Of which, the first step being deciding which asset classes to be represented in the portfolio, and second, determining the long-term 'target' percentage of the portfolio to allocate to each of these asset classes. The third step being specifying the range within the allocation can be altered, and the fourth step being selection of securities within each of these asset classes. Therefore, it is pertinent for fund manager to follow his investment policy over a predetermined time horizon or until such time when the policy is altered.

Why investment policy is being emphasized in mutual fund investment? How does investment policy dictate asset allocation strategy and fund performance? In recent times, studies conducted in advanced financial markets notably the United States (U.S.), have linked the performance of mutual funds to their respective asset allocation strategies (Brinson, Hood and Beebower, 1986; Brinson, Singer and Beebower, 1991; Ibbotson and Kaplan, 2000). In addition, the emergence of style analysis research on mutual funds has also answered some of the questions on the relationship between asset allocation and the styles as well as performance of mutual funds (Sharpe, 1988 & 1992; Fama and French, 1992 & 1993; Carhart, 1997).

² Refer Gibson (1996: 9-12).

In this respect, albeit a number of studies have been conducted on Malaysian mutual funds (Chua, 1985; Ewe, 1994; Shamsheer and Annuar, 1995; Fauziah, Suhaimi and Lee, 2002), there has yet to be an empirical study that examines the asset allocation strategies, and the relationship between the fund styles and the performance of unit trust funds. The studies done in advanced financial markets from the late eighties to the present time have highlighted that fund performance should not be studied in isolation without taking into account the relationship between the asset allocation strategies and fund styles.

In addition, the studies conducted with respect to the performance measurement of Malaysian unit trust funds have utilized market benchmarks such as Kuala Lumpur Composite Index (KLCI) and EMAS Index (Leong and Aw, 1997; Ch'ng and Kok, 1998), there has yet to be a research on applying a more appropriate benchmark to compare the different funds within the respective fund types or "peer groups". Obviously if the asset allocation strategies employed for different fund types are different, their performance should not be just compared against market benchmarks. In this respect, with the advent of the concept of "a fund's effective asset mix" by Sharpe (1988), the discussion of "custom benchmark"³ or estimated "style benchmark"⁴ have taken place and to-date, custom benchmarks such as S&P/BARRA, Russell/Nomura Japan Index, Wilshire Style Index, etc. are available commercially to evaluate the performance of fund managers' for the respective fund styles or "categories" (Tierney and Winston, 1991; Bailey, 1992; Bailey and Tierney, 1993; Coggin, 1998).

OBJECTIVES OF THE STUDY

This study aims to attribute the performance of unit trust funds to their respective asset allocation in the portfolios, and ascertain both the degree of selection⁵ and style⁶ exhibited by the respective fund managers. In

³ Refer to Tierney and Winston (1991) and Bailey and Tierney (1993). Custom benchmark refers to a benchmark which provides passive replication of a manager's investment style.

⁴ Style benchmark and custom benchmark are used interchangeably.

⁵ Degree of selection is the degree of active investment strategies exercised by the fund managers.

addition, besides benchmark comparison, this paper intends to show that performance of funds can also be compared against their respective fund types, “categories” or “peer groups”.⁷

The rest of this paper is arranged as follow: Section two discusses the prior studies on style analysis, asset allocation and fund performance, and is followed by previous research on Malaysian mutual funds. Section three describes the data. Section four explains the methodology used. Section five reports the results and the final section concludes this study with some policy implication for the mutual fund industry. The result is reported for an aggregate of 42 samples, with some focus on a growth and income fund – M Berjaya, to contrast the results of regression and style analysis, as well as to highlight the applicability of style analysis on an individual fund.

PAST STUDIES

Style Analysis and Mutual Fund Styles Classification

Sharpe (1988, 1992) originally introduced ideas of ‘effective asset mix’ and ‘attribution analysis’ before he adopted the term ‘return-based style analysis’ in subsequent publication. This is to distinguish return-based from other kinds of style analysis such as characteristic-based style analysis.⁸ The effective-mix methodology uses quadratic optimization of index returns to match a manager’s return pattern as closely as possible. In implementation, the estimated style benchmark is used for evaluating a manager’s performance.

Subsequent to the exposition by Sharpe, a number of researchers have also utilized style analysis. Tierney and Winston (1991) supported the

⁶ Degree of style is the degree of passive investment strategies i.e., the asset allocation policy and the securities held in each asset classes are fixed irrespective of the current stock market condition.

⁷ Fund types, “peer groups” and “categories” will be used interchangeably.

⁸ A performance measurement proposed by Daniel et al. (1997). It requires actual portfolio constituents as input. In the context of characteristic-based style, style is more appropriately refers to portfolio style.

use of return-based style analysis to analyze the asset mix of a portfolio manager. Using a four equity style portfolios produced by Wilshire Asset Management as generic portfolio for style-point analysis, they concluded that creation of a custom benchmark is the best way to address the style issue. Christopherson (1995) linked the crucial relationship among past return patterns, portfolio characteristics and future returns and pointed out that the reason for studying investment style was not so much concerned with the past returns, but to anticipate future returns. Lobosco et al. (1997) approximated the confidence intervals for style weights and verified its efficacy through extensive Monte Carlo simulation.

Asset Allocation and Performance of Mutual Funds

An extensive research has also linked asset allocation policy to performance of mutual funds. Brinson et al. (1986) reported that from a study conducted on 91 large U.S. pension plans over the period of 1974-83, investment policy dominated investment strategy, explaining on average of 93.6 percent of variation in total plan return. In a subsequent study with a sample of 82 funds, it was shown that active investment decisions by plan sponsors and managers such as selection and timing did not manage to improve the performance for the period from December 1977 to December 1987 (Brinson et al., 1991). In one of the recent studies based on 10 years of monthly returns of 94 balanced funds and 5 years of quarterly returns of 58 pension funds, it was found that based on a time-series analysis, 90 percent of the funds' ups and downs was explained by their asset allocation policies, and on a cross-section analysis, 40 percent of the difference between two funds' performance was the result of their policy difference, and the ratio of the asset allocation policy to the fund's actual return was almost 1 (Ibbotson and Kaplan, 2000).

Mutual Funds in Malaysia

Chua (1985) with exclusive samples of 12 Malaysian mutual funds between 1974 to 1984, concluded that funds outperformed the market proxy and performance was fairly consistent over time. High performance funds tend to relate to those with low expense ratio, low asset size and low portfolio turnover.

In subsequent study, Ewe (1994) utilized a sample of 37 funds and a period between 1988–1992, with test of performance by Jensen's Alpha Measure and Sharpe Index Measure, reported that while risk adjusted returns overall were less than those of stock market implying that the managers had low forecasting ability. Shamsher and Annuar (1995) found a similar result with Ewe (1994), where the returns on investment in 54 funds for the period 1988–1992 were below risk-free and market returns. Besides the performance is inconsistent over time, the degree of diversification of the portfolios was below expectation. In another studies by Shamsher and Annuar (2001), using a sample size of 41 non-government based mutual funds from 1995 to 1999, they reported that based on risk-adjusted returns basis, both active and passive funds performed equally well, but underperformed the market portfolio. They concluded that choice of active or passive funds was irrelevant given equal performance, but growth funds should be prioritized over income if investors preferred actively managed funds over passive funds and vice versa. Fauziah, Suhaimi and Lee (2002), with a sample of 78 funds and a period between 1990–1999, with test of performance of Jensen's Alpha Measure and Sharpe Index Measure, and test for consistency of performance using Spearman Rank correlation, concluded that the performance of funds was not significantly above both risk-free and market returns. They were not able to outperform a naïve buy-and-hold policy, since the funds' systematic risks were quite stable over time. In addition, fund performance was inconsistent from one period to another.

DATA

Data Selection

The data comprises of month end bid (buy) price of equity funds listed on daily newspapers. Bid price is selected as the measure of a unit trust fund's performance as it reflects the actual amount of funds a fund manager has to invest/work with. On the other hand, the offer (sell) price of a unit, includes fees due to the fund manager.

Table 1 shows the 42 funds which could be divided into seven groups of fund types or categories,⁹ of which are described in table 2 respectively.

Table 1: Composition of Sample Data

Classification	No. of funds	As Percentage of Overall Sample
Growth and Income	25	59.5
Growth Funds	5	11.9
Aggressive Growth Funds	2	4.8
Balance Funds	4	9.5
Small Companies Funds	3	7.1
Index Fund	2	4.8
Federal Fund	1	2.4
	42	100

Table 2: Fund Types

Type	Description
Growth funds	Growth funds are Malaysian-domiciled unit trusts which mainly invest in Malaysian equities and on a regular basis, more than half of the total returns are in the form of capital gain (increased unit price or bonus units).
Income funds	Income funds are Malaysian-domiciled unit trusts which mainly invest in Malaysian equities and on a regular basis, approximately half of the total returns achieved are distributed to unit holders in the form of income. Suitable for investors seeking income and some level of growth at low risk.
Balanced Fund	Balanced funds are Malaysian-domiciled unit trusts which will only invest up to a maximum of 60 percent in Malaysian equities and the balance in fixed interest securities.
Aggressive Growth Fund	Similar to growth funds but with investments in aggressive, fast track shares that promise high returns-high risk.
Index Fund	Invest in a basket of shares that tracks a selected number of stocks in the index.
Federal Fund	Funds that are managed by the Permodalan Nasional Berhad (PNB), ¹⁰ a national trust fund corporation.
Small Companies Fund	Invest mainly in small companies with growth capacity.

⁹ In this study, the self-classified fund type as listed in the website (as accessed in October 2002) of the Federation of Malaysian Unit Trust Managers (FMUTM) at www.fmutm.com.my are used.

¹⁰ See www.pnb.com.my.

Data Description

As the methodology of style analysis requires at least sixty consecutive monthly return of funds, a sample period from February 1996 through January 2001 is chosen.

Dependent Variables

The continuous compounding return¹¹ for the fund is used as the dependent variable. It is calculated as

$$R_t = \ln \left(\frac{P_t}{P_{t-1}} \right) \times 100$$

where: R_t denotes the continuous compounded return at time t

P_t denotes the asset price¹² at time t

\ln denotes the natural logarithm

Independent Variables

Independent variables are a series of returns of asset classes invested by fund managers. These asset classes were chosen after careful examination on literatures such as Choong (2001) and fund prospectuses. The asset classes that represented the investment universe are shown in table 3.

¹¹ See Brooks (2002: 6–8). See also Gouriou and Jasiak (2001: 12).

¹² The selling price for the funds is usually the Net Asset Value (NAV) of the funds except one fund in the sample, where the buying price is the NAV.

Table 3: Asset Classes

Class Name	Description
Large Capitalization Stocks	Represented by EMAS Index, ¹³ an all-share index covers investment in equities listed at KLSE main board. ¹⁴
Medium Capitalization Stocks	Represented by Second Board Index, an all-share index covers investment in equities and securities listed at KLSE's second board. ¹⁵
Treasury Product	Represented by Treasury Bill. T-Bill of three-month rate is used. A proxy for treasury products.
Time Deposit	A proxy for short-term Ringgit deposit in financial institutions. Time deposit of three-month rate is used.
Money-at-Call ¹⁶	Represented by Kuala Lumpur Inter-Bank Offer Rate (KLIBOR). KLIBOR 7-day deposit rate is used.
Money Market Instrument	A proxy for short-term Ringgit money market instruments. Represented by Bankers Acceptance (BA) rate of 1-month.
Government Bonds	Represented by MGS-bond all tenure Index, ¹⁷ which account for MGS with value above RM100 million on issue for maturity greater than one year.
Corporate Bonds	Represented by RAM Listed Bond Index, which account for all bonds and loan stocks listed on KLSE a term to maturity of more than one year. A proxy for listed private debt securities.

¹³ EMAS Index is the abbreviation of Exchange Main Board All-Shares Index. The board is weighted by market capitalization, with base date on 1 January 1994 and an assigned index value of 100, and a total of 269 companies listed on base date.

¹⁴ The main board are for companies with minimum paid-up capital of RM60 million with stock of RM1 per share, of which at least 25 percent of holdings belong to general public. Refer Kuala Lumpur Stock Exchange information handbook (2001: 55).

¹⁵ The companies listed in second board must have a minimum paid-up capital of RM40 million with stock of RM1 per share. The board was launched in 1991, an all-share index which is weighted by market capitalization with base date on 31 December 1990. For other listing requirements, refer Kuala Lumpur Stock Exchange information handbook. (2001: 56).

¹⁶ Money-at-Call refers to a sum of money placed by reporting institutions with discount houses on terms whereby deposits may be re-called by the reporting institution at any time when the domestic money market is open. Source: www.bnm.gov.my.

¹⁷ Source of data: Rating Agency Malaysia (RAM)-Quantshop.

METHODOLOGY

As in Sharpe (1992), this study initially introduces the generic factor model in equation (1) before adapting it into an “asset class factor model”, to be used as an “unconstrained regression” model in the first instance [equation (2)], and modified into a “constrained regression” model in a subsequent step [equation (3) and (4)]. In the final part, style analysis is introduced in equation (5).

Generic Factor Model

Starting with a generic factor model:

$$\tilde{R}_i = \left[b_{i1} \tilde{F}_1 + b_{i2} \tilde{F}_2 + b_{ik} \tilde{F}_k + \dots + b_{in} \tilde{F}_n \right] + \tilde{e}_i \quad (1)$$

where :

\tilde{R}_i = return on asset i

\tilde{F}_{ik} = value of factor k for asset i

b_{ik} = sensitivity of asset i to factor k

\tilde{e}_i = non-factor return on asset i

with the **assumption** that the non-factor returns are uncorrelated

$$\sigma_{eiej} = 0$$

Unconstrained Regression Model

By adapting the equation (1) into a **special case** of generic factor asset model i.e., an **Asset Class Factor Model** could be derived. The two features of the model are:

(i) factors are returns on asset classes

(ii) the sum of sensitivities is one

$$\sum_{j=1}^n b_{ij} = 1 \quad \text{for any asset } i \text{ and asset classes } j$$

Factors used in this model are market indices representing various asset classes of investing. Substituting the independent variables or asset classes from table 3 into equation (1),

$$\begin{aligned} \Delta R_t = & C + \Delta EM_t + \Delta SB_t + \Delta TB_t + \Delta FD_t + \Delta KB_t + \Delta BA_t \\ & + \Delta MGS_t + \Delta LB_t + e_t \end{aligned} \quad (2)$$

$$\therefore \Delta R_t = \ln \left(\frac{P_t}{P_{t-1}} \right), \text{ likewise for all the independent variables.}$$

where

ΔR_t = the returns of fund as at time t

P_{t-1} = the price of fund at time t-1

C = Intercept

EM_t = Returns for Exchange (Main Board) All Share Index

SB_t = Returns for Second Board Index

TB_t = Returns for 3-month Treasury Bill

FD_t = Returns for 3-month Time Deposit

KB_t = Returns for 7-day offer rate of Kuala Lumpur Inter-Bank Market

BA_t = Returns for 1-month Bankers Acceptance rate

- MGS t = Returns for Government Securities (all tenure index)
- LB t = Returns for Listed Bond Index
- e_t = error term

Constrained Regression Model

When fund returns are regressed against the return series of asset classes, multicollinearity may exist. One method of mitigating the problem is by adding a structure i.e. a nonsample information to the problem in the form of restrictions on the parameters.¹⁸ Using nonsample information in the form of linear constraints on parameter reduces estimator sampling variability.

From equation (1), equate the sum of factors to one by expressing b_{in} as a function of $b_{i1} \dots b_{in-1}$

$$\tilde{R}_i = \left[b_{i1} \tilde{F}_1 + b_{i2} \tilde{F}_2 + \dots + (1 - b_{i1} - b_{i2} - \dots - b_{in-1}) \tilde{F}_n \right] + \tilde{e}_i$$

Next,

$$(\tilde{R}_i - \tilde{F}_n) = \left[b_{i1} (\tilde{F}_1 - \tilde{F}_n) + b_{i2} (\tilde{F}_2 - \tilde{F}_n) + \dots + b_{in-1} (\tilde{F}_{n-1} - \tilde{F}_n) \right] + \tilde{e}_i \quad (3)$$

Therefore, perform a regression of $(R_i - F_n)$ against $(F_1 - F_n)$, $(F_2 - F_n)$, ..., $(F_{n-1} - F_n)$, a set of factors that sum up to one will be derived.

¹⁸ See Hill (2001: 190-191). This is also concured by Lobosco and Dibartolomeo (1997: 80-81).

Rewriting the regression model [2] from the above, it becomes

$$\begin{aligned}
 (\Delta R_t - \Delta LB_t) = & (\Delta EM_t - \Delta LB_t) + (\Delta SB_t - \Delta LB_t) + (\Delta TB_t - \Delta LB_t) \\
 & + (\Delta FD_t - \Delta LB_t) + (\Delta KB_t - \Delta LB_t) + (\Delta BA_t - \\
 & \Delta LB_t) + (\Delta MGS_t - \Delta LB_t) + e_t
 \end{aligned} \tag{4}$$

Style Analysis

Style Analysis is the use of quadratic programming for solving the asset allocation problem. This approach incorporates two constraints: first, coefficients must sum to 100 percent and second, coefficients must be positive. Negative coefficients can be interpreted as short positions in asset classes. This type of strategy is rarely used by the funds examined, and prohibiting these coefficients provides better, more usable results.

The factor is rewritten as

$$\tilde{e}_i = \tilde{R}_i - [b_{i1} \tilde{F}_1 + b_{i2} \tilde{F}_2 + \dots + b_{in} \tilde{F}_n] \tag{5}$$

where \tilde{e}_i = selection¹⁹ = Fund return – style benchmark return

\tilde{R}_i = return of fund i

b_{in} = sensitivities of factors n for fund i

\tilde{F}_n = factor returns

To obtain the style,

Minimize Variance of residual return \tilde{e}_i

Subject to: $\sum_{j=1}^n b_{in} = 1$ for any asset i and asset classes n

and $0 < b_n < 1$

¹⁹ Also known as tracking error.

In this way, the coefficients tabulated will resemble the weights within a portfolio and conveniently displayed as part of the portfolio.

$$R^2 = 1 - \frac{\text{Var}(\tilde{e}_i)}{\text{Var}(\tilde{R}_i)} \quad (6)$$

As shown in equation (6), for asset *i*, proportion of variance ‘explained’ by asset classes.

$$\frac{\text{Var}(\tilde{e}_i)}{\text{Var}(\tilde{R}_i)} \quad (7)$$

As shown in equation (7), proportion of fund variance due to active management (selection).

In other words, the return of unit trust fund is decomposed into return on a set of asset classes and residual return. The former is attributed to *style* and represented by the R-squared [equation (6)]. The latter is attributed to *selection* [equation (7)].

$$\text{Monthly Selection Sharpe Ratio (MSSR)} = \frac{E(\tilde{e}_i)}{\sigma_{e_i}} \quad (8)$$

where MSSR = Monthly selection Sharpe ratio for fund *i* during period *T*

In order to take into account the added (or subtracted) value provided by a fund i.e., its benchmark and the added risk, the monthly mean selection return is divided by the standard deviation of monthly selection returns. This gives a Monthly Selection Sharpe Ratio (MSSR) as shown in equation (8).

$$\text{Selection Sharpe Ratio (SelSR)} = \text{MSSR} \times \sqrt{12} \quad (9)$$

To annualize this, MSSR is multiplied by the square root of 12. The result will be termed simply the SelSR. SelSR denotes the valued added through active management per unit of added risk.

RESULTS

As shown in table 4, after applying the unconstrained regression model in equation (2) on M Berjaya fund, a R-squared value of 93.94 percent and coefficients of various asset classes expressed as percentages are obtained. However, these coefficients do not sum up to 100 percent implying that all the resources have not been invested in these asset classes. In addition, there are negative coefficients which violates the rule of 'no' short sale position usually entrenched in the investment policy of unit trust funds.

Table 4: Results of Regression and Style Analysis, M Berjaya Fund

	Unconstrained Regression	Constrained Regression	Style Analysis
Large-cap stocks	104.47	104.38	91.51
Medium-cap stocks	-12.48	-12.56	0
T-Bills	2.9	4.59	4.24
Time Deposits	-12.7	-11.17	0
Money-at-call	13.9	11.48	0
Bankers Acceptance	-12.7	-9.95	0
Government Bonds	-29.4	-1.45	0
Corporate Bonds	14.1	14.67	4.25
Total	68.09	100	100
R-squared	93.94	93.40	92.16

As the problem of multicollinearity may exist, the constrained regression method with an added constraint as shown in equation (4) is used to mitigate this problem. While the coefficients of various asset classes are sum up to 100 percent, the R-squared value has reduced from 93.94 percent to 93.40 percent. Notwithstanding the high R-squared value, the negative coefficients implying the existence of short sale position remain.

The third column of table 4 shows the result of style analysis, which is subjected to the two conditions set up in equation (5), the minimum variance portfolio is found for M Berjaya with 91.51 percent in large-cap stocks, 4.24 percent in T-Bills and 4.25 percent in Corporate bonds. By transforming the information into a bar chart in figure 1, the

holding of M Berjaya in respective asset classes could be clearly observed.

Applying the computation in equation (6) and (7), it is revealed that that the fund manager of M Berjaya exercised a small degree of selection, i.e. 7.85 percent, while the fund follows its style closely, at 92.15 percent. A graphical presentation in figure 2 illustrates the degree of style and selection.

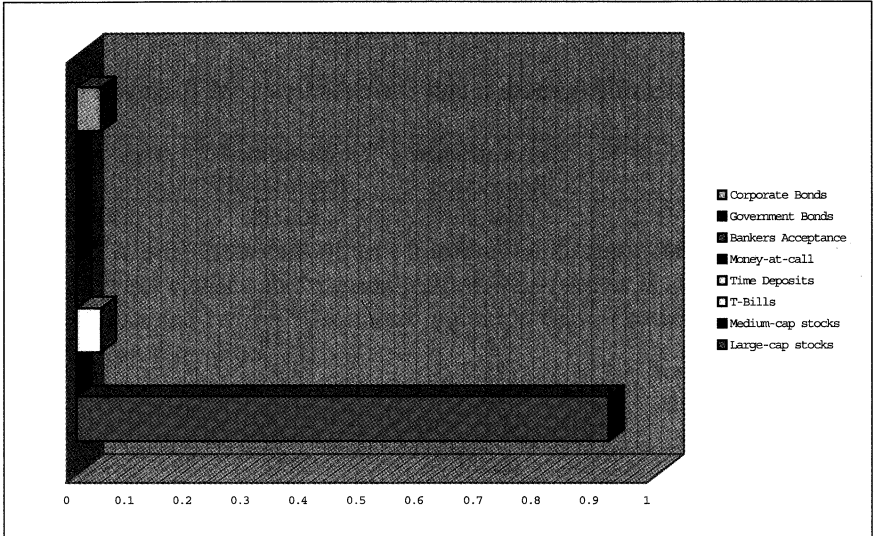


Figure 1: M Berjaya Fund, Styles Based on Sixty Monthly Returns (1996–2001)

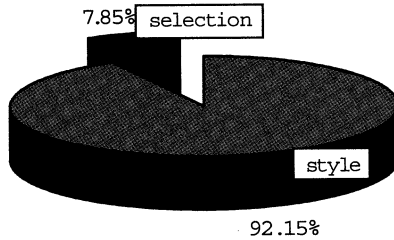


Figure 2: M Berjaya Fund, Degree of Style and Selection (1996–2001)

Table 5: Mean, Standard Deviation, Correlation with KLCI Benchmark and Correlation Coefficients between the Returns of Asset Classes

Asset Class	Mean	Std Deviation	Correlation with KLCI	EMAS	SB	Tbill	FD	KLIBOR	BA	MGS	LB
KLCI	-0.065	11.58	1.00								
EMAS	-0.35	11.92	0.98	1.00							
SB	-0.44	17.93	0.75	0.81	1.00						
Tbill	-0.49	12.18	-0.03	-0.004	0.01	1.00					
FD	-0.90	6.62	-0.48	-0.47	-0.29	-0.09	1.00				
KLIBOR	-1.06	7.86	-0.35	-0.32	-0.22	0.25	0.64	1.00			
BA	-1.18	7.57	-0.35	-0.36	-0.35	0.30	0.49	0.82	1.00		
MGS	0.77	1.24	0.25	0.25	0.25	-0.61	-0.24	-0.34	-0.52	1.00	
Lb	0.34	5.24	0.21	0.24	0.24	0.08	-0.13	0.01	0.01	-0.02	1.00

As stated by Sharpe (1992) "... while not strictly necessary, it is desirable that such asset classes should be (1) mutually exclusive, (2) exhaustive and (3) have returns that 'differ', ... and the asset classes returns should either have low correlations with one another or, in cases in which correlations are high different standard deviations". While style analysis in equation (5) has attempted to capture the investment universe, i.e., to include all possible investment products in the model, careful consideration has been taken to ensure that asset classes chosen are not correlated to one another. However, as shown in table 5, it is found that two pairs of correlation coefficients i.e. the second board and EMAS, Bankers' Acceptance and KLIBOR, have rather high correlation of 0.81 and 0.82 respectively. Highly correlated assets will not ensure portfolio diversification.

A further examination on their standard deviations in table 5 reveals that their respective values are different i.e. the standard deviation of EMAS Index is 11.92 percent while second board is 17.93, and the value for KLIBOR is 7.86 as opposed to Bankers' Acceptance of 7.57.²⁰ KLIBOR is often used as the base rate when pricing the money market instruments like Repurchase Agreement (REPO) and Negotiated Certificate of Deposits (NCDs). The inclusion of KLIBOR as an asset class would enlarge the investment universe especially so in actual practice of fund management, surplus fund is often placed in short-term money market to earn some returns.

In addition, the correlation coefficients between the various asset classes and the benchmark KLCI are also examined. As shown in table 5, there is a strong correlation of 0.98 between the EMAS index and KLCI. It is also observed that the second board index and KLCI have equally high correlation of 0.74. This strong correlation exists due to the fact the KLCI encompasses the best 100 companies in Malaysian economy, which are also the components of EMAS Index.

Across the fund types as shown in table 6, growth and income funds ("GNI") invest in large-cap stocks (66.09%), government bonds (17.66%), medium-cap stocks (6.55%), and followed by corporate bonds (2.82%) and money-at-call (2.76%). By the degree of selection, GNI funds have 25.52 percent while the style is at 74.48 percent. In contrast, growth funds ("GRO") invest in large cap stocks (65.20%), government bonds (23.95%) and medium cap stocks (5.03%), with approximately 25 percent of degree of selection exercised by the managers. While the top three asset classes held by both fund types are the same, GNI funds diversify themselves across all asset classes.

²⁰ The author has attempted another style analysis model of 7 asset classes (excluding the BA asset class). The results obtained are similar to 8 asset class model for both the R-squared value and coefficients for various asset classes.

Table 6: Degree of Style, Selection and Asset Allocations of Different Fund Types

Classification of Fund Style	Style	Selection	Large-Cap	Medium-Cap	T-Bills	Time Deposit	Money At-call	Bankers' Accept'n	Govt Bonds	Corp Bonds	Total
Growth and Income Funds	74.48	25.52	66.09	6.55	1.41	1.17	2.76	1.53	17.66	2.82	100
Growth Funds	75.16	24.84	65.20	5.03	0.00	2.22	2.67	0.72	23.95	0.21	100
Aggressive Growth Funds	55.21	44.79	60.24	0.00	0.00	9.55	0.00	0.00	30.21	0.00	100
Balanced Funds	62.96	37.04	51.10	1.42	0.15	6.76	0.42	1.68	3.47	0.00	100
Small Companies Funds	78.01	21.99	60.04	10.58	3.42	3.43	0.00	0.00	20.53	2.00	100
Index Funds	77.18	22.82	57.96	1.90	0.00	0.79	0.05	0.00	39.31	0.00	100
Federal Funds	76.43	23.57	62.29	0.00	9.86	0.00	0.00	0.00	27.85	0.00	100

It could be observed in table 6 that aggressive growth funds (“AGG”) have distinctive holdings in three main groups of asset classes i.e. a substantial holding in large-cap stocks (60.24%), followed by government bonds (30.21%) and time deposits (9.55%). It is also observed that AGG funds have *the highest degree of selection* (45%) among the fund types. These results seem to concur with the hypothesis that fund managers managing AGG funds do constantly scouting the markets for investment opportunities whenever the market conditions change, and they do keep away some fund in liquid assets like time deposit in anticipating for these kind of opportunities.

Balanced funds in table 6 show a well across-the-board asset classes diversification, with half of the assets in the large-cap stocks (51.10%), and cushion themselves against possible market risk by a substantial holding in government bonds (38.47%), time deposits (6.76%) and other short-term money market instruments in order to give an even stream of dividends to their investors.

By comparison in asset classes holding, balanced funds are more diversified than GRO and AGG funds, but they are less diversified compared to GNI funds. Balanced funds have *the second highest degree of selection* among the fund types (37%), denoting that the fund managers are often on the look out for investment opportunities as well.

As the name implies, small companies funds (“SMA”) have *the largest holding of medium-cap stocks* (10.58%) compared to other fund types. However, contrary to the common belief, small companies funds also hold 60 percent in large cap stocks as shown in table 6. It is noted a big portion of the portfolios is allocated to the government bonds (20.53%), possibly for cushioning the uneven dividend stream from small and growing companies.

Table 6 shows that index funds have a substantial holding of large-cap stocks (57.96%) and government bonds (39.31%), followed by a small holding in medium-cap stocks (1.90%). Contrary to the common belief that index funds should have a high degree of style relative to other kind of fund types, the samples of this study only exhibit a degree of style of 77 percent, which is not prominent compared to other fund types. In the

theory of portfolio management, index funds are guided by a strategic asset allocation (“SAA”) policy which mimics the KLCI benchmark. This means that index fund is expected to have a high degree of style. Theoretically, if an index fund were to follow a *full replication strategy*²¹ after the KLCI benchmark, the degree of style should be very near to 100 percent.

Federal fund shows a clear holding in three main asset classes, with substantial holding in large-cap stocks (62.29%), government bonds (27.85%) and T-bills (9.86%), denoting a close association of the fund to government bodies or quasi-government body. The large-cap stocks are also indirectly linked to economy management of the government. A strong and uplift of stock market reflects sound economy management by the government of the day. However, it is noted that the degree of selection of 23.57 percent is not dissimilar compared to index funds and small companies funds.

Table 7 highlights the results of the cumulative return difference (fund versus style) and selection sharpe ratio which are useful as performance measurements. As both measurements are originally obtained from the *cumulative selection return*²² from the style analysis, they report the same results with respect to performance of funds intuitively.

Across the fund styles, from the point of view of cumulative return difference, it could be observed that small companies funds overperform their passive style benchmarks by 17.97 percent, followed by aggressive growth funds which underperformed their style benchmarks by -7.07 percent and growth funds (-14.55%), growth and income funds (-28.48%), index funds (-31.37), balanced funds (-32.14%) and federal fund (-35.27%).

From selection sharpe ratio point of view, it is observed that small companies funds added 0.35 through active management per unit of added risk. This is followed by aggressive growth fund managers, which

²¹ Full replication strategy attempts to mimic the market benchmark as closely as possible. However, the real world constraint is that huge amount of fund is needed in implementing this strategy.

²² Cumulative selection return is defined as the difference between fund's return and that of a passive mix with the same style.

added a minus 0.09 through active management per unit of added risk, growth fund managers (minus 0.17 per unit of added risk), growth and income funds (minus 0.38 per unit of added risk), index fund (minus 0.44), balanced funds (minus 0.45) and federal fund (minus 0.46 per unit of added risk) in a descending order.

On individual fund level, the cumulative return difference could be used to compare against to the fees charged by the managers. In this respect, taking an example from the small companies fund category, given that both funds charge the same initial and annual management fees, M Equity with 33.49 percent is certainly better than M Progress which gives 23.29 percent of cumulative return. It is also noted that M Equity has lower standard deviation of returns than M Progress (3.09% versus 3.37%). In addition, from selection sharpe ratio, M Equity adds 0.75 per unit of added risk as compared to M Progress of 0.45.

In short, looking across table 7, any fund could be compared against the other by the rule of thumb, the higher the cumulative returns, the higher the selection sharpe ratio and the lower the standard deviation is clearly a better choice.

²³Table 7: Cumulative Return Difference (Fund versus Style) and Selection Sharpe Ratio

No	Fund	Initial # Charge (%)	Annual # Charge(%)	Cum Ret Diff(%) Fund vs Style	Ave Return (% per mth)	StdDev (% per mth)	T statistics (Ave Return)	Monthly Sel Sharpe Ratio	Selection Sharpe Ratio
	KLCI @ 31 Jan 2001			-32.89	-0.67	12.17			
	Growth & Income Funds								
1	Affin Equity	6.40	1.50	-0.92	-0.02	3.85	-0.03	-0.004	-0.01
2	AM First	7.00	N/A	12.87	0.21	7.61	0.21	0.03	0.10
3	AUT Malaysia Berjaya	6.25	1.50	26.96	0.41	3.30	0.94	0.13	0.54
4	ASM TKMB 3	6.00	1.50	-42.24	-0.93	3.93	-1.81 **	-0.21	-0.57
5	ASM TKMB 4	6.00	1.50	-30.58	-0.62	3.71	-1.28	-0.16	-0.44
6	ASM TKMB 5	6.50	1.50	-47.65	-1.09	5.36	-1.56 *	-0.19	-0.52
7	ASM TKMB 6	5.00	1.50	-39.59	-0.85	4.23	-1.55 *	-0.19	-0.51
8	ASM TKMB 7(Income)	6.50	1.50	-53.21	-1.28	5.08	-1.93 **	-0.23	-0.59
9	ASM TKMB 8	6.50	1.50	-73.44	-2.22	14.79	-1.15	-0.15	-0.43
10	ASM TKMB 10	6.50	1.50	-27.14	-0.54	3.87	-1.06	-0.13	-0.39
11	ASM TKMB 11	6.50	1.50	-26.89	-0.53	3.98	-1.02	-0.13	-0.38
12	ASM first public fund	6.50	1.50	-43.57	-0.96	4.76	-1.56 *	-0.19	-0.51
13	ASM premier	6.50	1.50	-41.62	-0.91	4.77	-1.46 *	-0.18	-0.49
14	ASM ptrnb	6.50	1.50	-29.34	-0.59	5.01	-0.90	-0.11	-0.34
15	CT Trust (Note 1)	10.00	1.50	-39.19	-0.84	5.51	-1.17	-0.15	-0.42
16	CT Prime (Note 2)	10.00	1.50	-32.16	-0.66	5.34	-0.94	-0.12	-0.35
17	Mayban Unit Trust	6.50	1.00	2.67	0.04	3.55	0.10	-0.25	-0.63
18	Pacific Premier	6.88	1.50	-26.68	-0.52	4.27	-0.94	-0.12	-0.35
19	BSN	8.59	1.50	-26.20	-0.51	5.38	-0.73	-0.09	-0.29
20	Public Savings	6.51	1.50	-35.35	-0.74	4.41	-1.28	-0.16	-0.45
21	Public Growth	6.51	1.50	-36.13	-0.76	5.02	-1.16	-0.14	-0.42
22	Public Industry	6.49	1.50	-34.42	-0.71	5.99	-0.91	-0.12	-0.35
23	Public Regular Savings	6.50	1.50	-46.71	-1.06	5.75	-1.42 *	-0.17	-0.48
24	RHB Dynamic	6.00	1.50	-16.41	-0.30	3.25	-0.72	-0.09	-0.28
25	SBB Premium Capital	5.00	1.50	-4.94	-0.09	4.88	-0.14	-0.02	-0.06
	Mean	6.71	1.48	-28.48	-0.64	5.10	-0.94	-0.13	-0.38
	Growth Funds								
1	ASM TKMB 7 (Accumul	5.00	1.50	-3.71	-0.06	4.78	-0.10	-0.01	-0.05
2	BHLB Double Growth	6.50	1.50	-3.97	-0.07	4.65	-0.11	-0.02	-0.05
3	HLG Growth	6.00	1.50	-16.95	-0.31	5.11	-0.47	-0.06	-0.20
4	MBF Growth	6.50	1.50	-37.69	-0.80	6.84	-0.90	-0.11	-0.34
5	RHB Capital	6.00	1.50	-10.42	-0.19	2.98	-0.48	-0.06	-0.20
	Mean	6.00	1.50	-14.55	-0.29	4.87	-0.41	-0.05	-0.17
	Aggressive Growth Funds								
1	BHLB High Growth	6.50	1.50	10.02	0.16	6.61	0.19	0.03	0.09
2	Public Aggressive Growl	6.49	1.50	-24.16	-0.47	6.27	-0.57	-0.07	-0.23
	Mean	6.50	1.50	-7.07	-0.15	6.44	-0.19	-0.03	-0.09
	Balanced Funds								
1	BHLB Savings Fund	6.50	1.50	-17.83	-0.33	4.11	-0.62	-0.08	-0.25
2	Mayban Balanced	6.50	0.85	-37.68	-0.80	3.43	-1.79 **	-0.21	-0.56
3	MBF Balanced	6.50	1.50	-33.87	-0.70	5.18	-1.04	-0.13	-0.38
4	Public Balanced	6.50	1.50	-39.18	-0.84	3.76	-1.72 **	-0.20	-0.55
	Mean	6.50	1.34	-32.14	-0.67	4.12	-1.29	-0.16	-0.45
	Small Companies Funds								
1	AUT M Progress	6.25	1.50	23.29	0.36	3.37	0.81	0.11	0.45
2	AUT Malaysia Equity	6.25	1.50	33.49	0.49	3.09	1.22	0.17	0.75
3	BHLB ECO	6.5	1.50	-2.86	-0.05	6.44	-0.06	-0.01	-0.03
	Mean	6.33	1.50	17.97	0.00	4.30	0.00	0.09	0.35
	Index Funds								
1	ASM TKMB 2	6.5	1.5	-32.91	-0.67	4.61	-1.12	-0.14	-0.41
2	Public Index	6.49	1.5	-29.83	-0.60	3.40	-1.35 *	-0.16	-0.46
	Mean	6.50	1.50	-31.37	0.00	4.00	-1.24	-0.15	-0.44
	Federal Fund								
1	ASN	exit fee 3%	1	-35.27	-0.73	4.29	-1.32 *	-0.16	-0.46

Note : 1 & 2. The fees information is quoted as at July 2002 (Smart Investor July 2002 Issue).
All figures are obtained from FMUTM homepage at www.fmutm.com.my as at December 2002.
** and * denote level of significance at 5 and 10 percent level respectively.

²³ In column 6 of table 7, the t-statistics is computed by dividing the average return difference by standard error of the mean. The standard error of mean is derived by dividing standard deviation of the return difference by square root of 59.

Figure 3: M Berjaya: Cumulative Return Difference

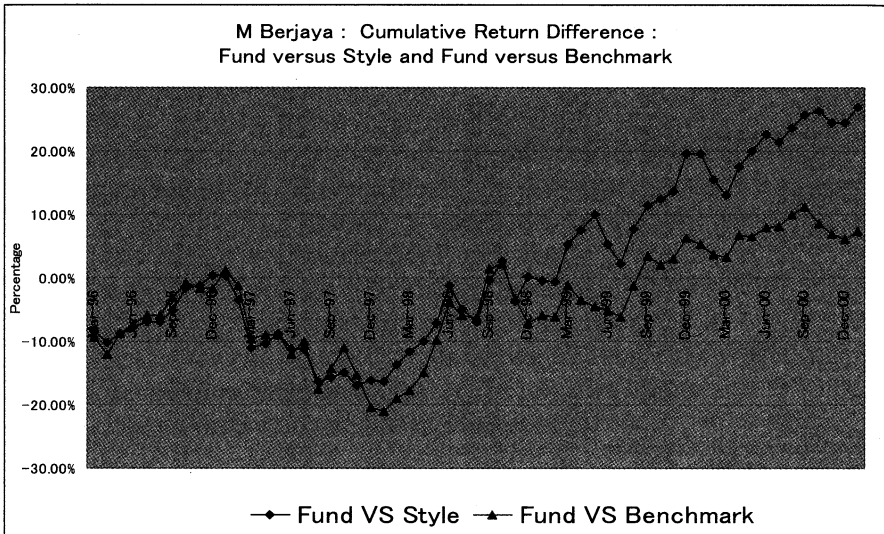


Figure 3 shows the cumulative sum of the monthly selection returns from February 1996 to January 2001 for M Berjaya fund. Throughout the period, it is observed that the graph shows increasing result from positive selection returns. The cumulative returns difference (fund versus style) for the 60-monthly period was 26.69%. On average, the fund overperforms its style benchmarks by 0.41% (41 basis points) per month. Figure 3 also indicates the cumulative returns difference (fund versus KLCI benchmark) of M Berjaya was by 7.33% for the 60-monthly period.

While Chua (1985) concluded that a fund with passive strategy, that is low portfolio turnover is likely to be the winner, our analysis singles out M Berjaya as the candidate with a high degree of style of 92.15 percent as if it behaves like an index fund, with substantial holding in large cap stocks (91.51%) as shown in figures 1 and 2. The Edge-Lipper Award 2000 confirmed our result as M Berjaya was the winner of the Growth and Income sector – 3 years category.

CONCLUSION

This paper has enhanced the understanding of different characteristics of fund types, such as what differs a growth fund from a balanced fund. This paper has also attributed the performance of Malaysian unit trust funds to their respective asset allocation. It could be observed that the factor which differentiates one fund type and its performance from another is its underlying asset classes, as dictated *ab initio* by its fund objective and implemented as asset allocation policy. Subscribing to a fund with a prescribed style is as if expecting a pattern of stream of cash flow from those asset classes. Henceforth, the expected risk and returns that were to affect these pattern of stream of cash flow should become the main concern of unit trust investors.

Among the samples in our analysis are the approved private unit trust funds of Employment Provident Funds (EPF) Investment Scheme.²⁴ While the scheme was ushered as the arrival of the age of investors' autonomy back in mid-90s, this liberated policy was short-changed by the Asian financial crisis in 1997-98, where the lacuna of investor protection hit out the unguarded ones. If the respective fund would have set-forth its exposure level to certain asset classes and adhered to that in its investment policy, the damaged done would be less disastrous.²⁵ Investors whom are well kept informed of their fund's investment policy, would probably be more decisive at the time of decision making²⁶, or else the invested funds would have dwindled over the time.

²⁴ As part of the EPF Investment Scheme, EPF members whom have a minimum of RM55,000 in their Account 1 could invest part of their money in the approved unit trust funds.

²⁵ The author would like to cite this as an analogy by drawing the experience of banking sector in Malaysia. During the Asian financial crisis, the Bank Negara, as the regulator of banking industry had set forth the exposure limit for lending to Broad Property Sector and Share Financing Scheme for commercial banks. Those banks which monitored their portfolios in line with the Guidelines faced lesser impairment in their asset qualities.

²⁶ The knowledge of the composition of asset classes would enable an investor to choose either to hold on or switch from one fund to another in line with his risk tolerance level, contingent upon the macroeconomic condition. Conversely, if the fund managers do not follow the investment policy, the managers would have said to alter the set of expected cash flows and risk borne by the investors.

As observed in developed markets, style analysis used with respect to adherence of investment policy, has reduced the asymmetric information between the fund managers and the investors. In this regard, Securities Commission – the regulator of the industry, should encourage the adoption of this international best practice, emphasize policy adherence and ensure accountability by fund managers. At the same time, the fund management industry owes an onus to their investors, to educate them of the importance asset allocation strategies and investment styles, in addition to disclosing more pertinent information in their half-yearly and annual reports to the public.

Better investors' protection begets investors' confidence, and would spur the growth of fund industry in the long-run. In addition, towards financial liberation as agreed under the ASEAN Free Trade Area (AFTA), the availability of another best practice would provide Malaysian unit trust funds another key of readiness in competing with regional and international mutual funds in the near future.

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Appendix 1: The Degree of Selection, Styles and Asset Classes Holding by Different Fund Types

No	Fund	Style	Selection	Large-Cap	Medium-Cap	T-Bills	Time Deposit	Money-at-call	Bankers' Accept'n	Govt Bonds	Corp Bonds	Total
1	Affin Equity	89.28	10.72	91.39	0.00	1.24	0.00	0.00	7.37	0.00	0.00	100
2	AM First	60.89	39.11	69.63	0.00	4.77	0.00	0.00	0.00	0.00	25.60	100
3	M Berjaya	92.16	7.84	91.51	0.00	4.24	0.00	0.00	0.00	0.00	4.25	100
4	ASM 3	81.21	18.79	60.05	7.04	0.00	0.00	6.08	0.00	26.83	0.00	100
5	ASM 4	85.99	14.01	65.63	10.41	0.00	0.00	6.52	0.00	17.44	0.00	100
6	ASM 5	72.69	27.31	51.84	16.71	0.00	0.00	10.19	0.00	21.26	0.00	100
7	ASM 6	76.42	23.58	60.36	2.60	0.00	1.17	4.49	0.00	31.38	0.00	100
8	ASM 7	66.20	33.80	43.92	13.49	0.00	0.00	0.00	4.75	37.84	0.00	100
9	ASM 8	42.95	57.05	58.82	23.90	0.00	0.00	17.28	0.00	0.00	0.00	100
10	ASM 10	90.70	9.30	97.93	2.07	0.00	0.00	0.00	0.00	0.00	0.00	100
11	ASM 11	87.97	12.03	80.66	8.40	0.00	0.00	4.10	0.00	6.84	0.00	100
12	ASM Ipf	86.46	13.54	93.81	2.70	3.49	0.00	0.00	0.00	0.00	0.00	100
13	ASM premier	78.86	21.14	66.95	8.30	0.00	0.00	7.84	0.00	16.91	0.00	100
14	ASM ptrnb	82.97	17.03	84.99	5.32	0.00	0.00	1.47	0.00	8.22	0.00	100
15	CT Trust	77.33	22.67	73.20	8.18	0.00	0.00	0.00	0.00	18.62	0.00	100
16	CT Prime	86.98	13.02	88.08	11.92	0.00	0.00	0.00	0.00	0.00	0.00	100
17	Mayban UT	78.59	21.41	56.94	0.21	0.48	0.00	8.79	0.00	33.58	0.00	100
18	Pacific Premier	79.72	20.28	55.53	10.29	0.00	0.00	0.00	0.00	21.10	13.08	100
19	BSN	80.36	19.64	76.78	7.19	16.03	0.00	0.00	0.00	0.00	0.00	100
20	Public Savings	57.59	42.41	24.67	14.59	0.00	6.66	0.00	0.00	53.42	0.67	100
21	Public Growth	62.18	37.82	56.11	0.00	5.07	6.19	0.00	7.97	24.67	0.00	100
22	Public Industry	50.20	49.80	41.15	3.95	0.00	7.79	0.00	0.00	20.21	26.91	100
23	Public Savings	37.22	62.78	36.67	0.00	0.00	3.90	2.33	2.08	55.02	0.00	100
24	RHB Dynamic	83.78	16.22	63.47	0.00	0.00	3.45	0.00	0.00	33.08	0.00	100
25	Premium Capital	73.34	26.66	62.25	6.49	0.00	0.00	0.00	16.06	15.21	0.00	100
Growth & Income Funds		74.48	25.52	66.09	6.55	1.41	1.17	2.76	1.53	17.66	2.82	100
1	ASM Growth	69.47	30.53	53.40	8.79	0.00	9.34	9.78	0.00	18.69	0.00	100
2	Double Growth Fund	73.33	26.67	64.48	0.00	0.00	1.55	0.00	3.59	30.38	0.00	100
3	HLG Growth	69.47	30.53	57.62	4.31	0.00	0.21	2.02	0.00	34.79	1.05	100
4	MBF Growth	75.05	24.95	81.22	12.06	0.00	0.00	0.00	0.00	6.72	0.00	100
5	RHB Capital	88.48	11.52	69.28	0.00	0.00	0.00	1.57	0.00	29.15	0.00	100
Growth Funds		75.16	24.84	65.20	5.03	0.00	2.22	2.67	0.72	23.95	0.21	100
1	High Growth Fund	56.10	43.90	64.38	0.00	0.00	15.03	0.00	0.00	20.59	0.00	100
2	Public Aggressive Growth	54.33	45.67	56.11	0.00	0.00	4.06	0.00	0.00	39.83	0.00	100
Aggressive Growth Funds		55.21	44.79	60.24	0.00	0.00	9.55	0.00	0.00	30.21	0.00	100
1	Savings Fund	65.39	34.61	47.89	0.00	0.00	8.42	0.00	0.00	43.69	0.00	100
2	Mayban Balanced	43.29	56.71	27.44	0.00	5.58	18.63	0.00	0.00	53.35	0.00	100
3	MBF Balanced	84.43	15.57	95.96	1.94	0.00	0.00	1.68	0.00	0.42	0.00	100
4	Public Balanced	58.74	41.26	33.11	3.75	0.00	0.00	0.00	6.73	56.40	0.00	100
Balanced Funds		62.96	37.04	51.10	1.42	0.15	6.76	0.42	1.68	38.47	0.00	100
1	M Progress	86.37	13.63	54.39	14.73	1.82	6.18	0.00	0.00	18.89	3.99	100
2	M Equity	92.59	7.41	89.54	0.00	8.45	0.00	0.00	0.00	0.00	2.01	100
3	Emerging Co	55.07	44.93	36.18	17.02	0.00	4.10	0.00	0.00	42.70	0.00	100
Small Companies Funds		78.01	21.99	60.04	10.58	3.42	3.43	0.00	0.00	20.53	2.00	100
1	ASM 2	78.02	21.98	65.91	3.79	0.00	0.00	0.10	0.00	30.20	0.00	100
2	Public Index	76.34	23.66	50.00	0.00	0.00	1.58	0.00	0.00	48.42	0.00	100
Index Funds		77.18	22.82	57.96	1.90	0.00	0.79	0.05	0.00	39.31	0.00	100
ASN												
1	Federal Fund	76.43	23.57	62.29	0.00	9.86	0.00	0.0	0.0	27.85	0.0	100

Appendix 2: List of Unit Trust Funds in the Sample

No.	Asset Management Co./ Plan Sponsors	Fund	Launch Date	Fund Type	Approved Units (mil)
1	Affin Trust	Affin Equity	93.04.29	Growth & Income	300
2	ASNB	ASN	81.04.20	Federal	2500
3	Arab Malaysian	AM First	89.01.10	Growth & Income	500
4	Asia Unit Trust	M Progress	70.06.01	Small Companies	300
5	Asia Unit Trust	M Berjaya	76.05.05	Growth & Income	50
6	Asia Unit Trust	M Equity	82.02.20	Small Companies	50
7	Amanah Saham Mara	ASM 2 Index	69.02.19	Index	20
8	Amanah Saham Mara	ASM 3	69.11.01	Growth & Income	20
9	Amanah Saham Mara	ASM 4	70.02.02	Growth & Income	20
10	Amanah Saham Mara	ASM 5	71.09.03	Growth & Income	20
11	Amanah Saham Mara	ASM 6	72.05.05	Growth & Income	20
12	Amanah Saham Mara	ASM 7	72.12.28	Growth & Income	20
13	Amanah Saham Mara	ASM Growth	72.12.28	Growth	20
14	Amanah Saham Mara	ASM 8	75.07.17	Growth & Income	20
15	Amanah Saham Mara	ASM 10	78.10.24	Growth & Income	20
16	Amanah Saham Mara	ASM 11	79.10.28	Growth & Income	20
17	Amanah Saham Mara	ASM fpf	92.04.20	Growth & Income	350
18	Amanah Saham Mara	ASM premier	95.06.12	Growth & Income	350
19	Amanah Saham Mara	ASM ptbn	95.08.28	Growth & Income	50
20	BHLB	Double Growth	91.05.15	Growth	550
21	BHLB	Emerging Companies	94.05.10	Small Companies	700
22	BHLB	Savings Fund	95.08.05	Balanced	500
23	BHLB	High Growth Fund	95.09.28	Growth	1000
24	Commerce Trust	CT Trust	89.08.19	Growth & Income	300
25	Commerce Trust	CT Prime	91.05.14	Growth & Income	300
26	HLG	HLG Growth	95.09.08	Growth	300
27	Mayban	Mayban Unit Trust	92.03.26	Growth & Income	500
28	Mayban	Mayban Balanced	94.09.19	Balanced	1000
29	MBF	MBF Balanced	91.05.01	Balanced	750
30	MBF	MBF Growth	95.06.01	Growth	300
31	Pacific Mutual	Pacific Premier	95.08.10	Growth & Income	500
32	BSN	BSN	95.01.12	Growth & Income	500
33	Public Mutual	Public Savings	81.03.29	Growth & Income	500

(continued on next page)

Appendix 2 (continued)

Asset Management Co./			Launch		Approved
No.	Plan Sponsors	Fund	Date	Fund Type	Units (mil)
34	Public Mutual	Public Growth	84.12.11	Growth & Income	1000
35	Public Mutual	Public Index	92.03.02	Index	500
36	Public Mutual	Public Industry	93.11.18	Growth & Income	1000
37	Public Mutual	Public Aggressive Growth	94.04.25	Growth	500
38	Public Mutual	Public Regular Savings	94.04.25	Growth & Income	1500
39	Public Mutual	Public Balanced	92.09.15	Balanced	1000
40	RHB	RHB Dynamic	92.09.15	Growth & Income	750
41	RHB	RHB Capital	95.04.12	Growth	500
42	SBB	Premium Capital	95.08.01	Growth & Income	500

Source of data: <http://www.fmutm.com.my>